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REMARKS

Claims 2-5 and 9-15 are in the application.

Claims 2, 4-5, 9-10, and 14-15 are herein amended.

Claim 16 is herein introduced. Support for claim 16 can be found at least in paragraphs [0017]-[0021].

No new subject matter has been added.

Claim Objection

Claim 4 is objected to because of the expression *"at least a second position"*.

Claim 4 has been amended to recite *"wherein the first of the four passive detectable devices is displaceable between said first indexed position said second indexed position"*.

Claim Rejections – 35 U.S.C. 112

Claims 2-5 are rejected for failing to comply with the enablement requirement.

In claim 2 as amended, the expression *"so as to be displaceable between no more than two stable positions"* has been canceled and replaced by the expression *"the joint operatively connecting said first of the at least three passive detectable devices for movement between a first indexed position and a second indexed position"*. Support for this amendment can be found through the specification as originally filed, and particularly in paragraphs [0021] and [0029], and in figures 1 and 2.

Claim Rejections – 35 U.S.C. 102

Claims 2-6 and 9-15 are rejected under 35 U.S.C. 102(e) for being anticipated by Franck et al. This rejection is respectfully traversed for the following reasons.

Franck et al. teach a system for determining the spatial position and orientation of a body. A surgical instrument 740 is secured to a drive platform 1130 of a mounting device 1110 which is attached to the head of a patient. A base 1150 of the mounting device 1110 is provided with four LEDs 730 and the drive platform 1130 is provided with an LED 742. The drive platform is movable with respect to the base 1150. By tracking

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the LEDs 730 and 742, the position of the end of the surgical instrument is determined and displayed on a display 610 to the surgeon.

Claim 2 as amended recites a passive optical interface apparatus used for tracking the position of an object. This apparatus is connected to the object which can be a surgical tool, for example. The apparatus comprises at least three detectable devices of which at least one is movable between a first and a second indexed positions with respect to the object. These indexed positions are precisely known with respect to the object. The apparatus has at least two functions: (1) holding the detectable devices in a known geometry, to allow the position of the object to be determined; and (2) sending commands to the tracking system. By tracking the position of the detectable devices, it is possible to determine the position of the object while the surgeon manipulates the object. Furthermore, the apparatus can be used by an operator to send a command to or trigger an interaction with the tracking system by moving the movable detectable device to any one of the first and second indexed positions.

Regarding claim 2 as amended, Franck et al. teach a translation stage on which a surgical instrument is secured. The surgeon slowly moves the surgical instrument from an initial position to a final position by turning the screw 1122. The position of the end of the surgical instrument is given by the position of the LED 742. While slowly moving the surgical instrument, the surgeon looks at the display 610 in order to know the position of the end of the surgical instrument with respect to a target part of the patient's brain, for example. Accordingly, there is no indexation, as the surgical instrument can adapt any position in the translation stage.

If the final position of the LED 742 (or the end of the surgical instrument) would be an indexed position, the surgical instrument would be moved automatically to this final position and would likely contact the patient's skull. The system taught by Franck et al. passively tracks the position of the LEDs and displays the position of the end of the surgical instrument. Franck et al. cannot send a command to the tracking system by moving the LED 742 since this LED is related to the position of the surgical instrument. Therefore, the Applicant submits that the system taught by Franck et al. is not adapted to offer indexed positions, whereby Franck et al. fails to teach *"the joint operatively*

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connecting said at least a first of the at least three passive detectable devices between a first indexed position and a second indexed position".

Claim 14 as amended recites *"tracking a position and orientation of the at least three passive detectable devices and interpreting said position and orientation of the at least three passive detectable devices as a continuous input for calculating a position and orientation of the object", "interpreting a displacement of said at least one of said at least three passive detectable devices with respect to the object as a discrete input from the handler"* and *"responding to the discrete input by executing a function of the interaction signal interpreter computer program".* Claim 15 has been amended accordingly. Support for this amendment can be found at least in paragraph [0021]. Paragraph [0021] recites, *"the tool operator is enabled to send a signal to the interactive tracking system 18 by flicking the lever 24 out of position P1, and this is equivalent to a click of a mouse button* [...] *pattern 12-14-P1 may represent an OFF position, while pattern 12-14-P2 represents an ON position* [...] *this ON/OFF switching may be linked to various functions in the CAS system".* In computer science, a discrete input refers to an input which causes a function or a command to be executed while a continuous input refers to a series of inputs varying in time used to represent a varying variation (see http://en.wikipedia.org/wiki/Input_device). A typical example of a continuous input is the position of a computer mouse. By moving the mouse, the computer receives a series of different mouse positions in time and moves a cursor on a display accordingly. A person skilled in the art would understand that the position of the detectable devices is a continuous input which is used to determine the position of the object. Referring now to discrete inputs, a well-known example of a discrete input device is the *"ENTER"* key of a keyboard. By depressing the *"ENTER"* key a function of the computer is executed. A person skilled in the art would understand that clicking the button of a mouse, switching between ON/OFF positions, and *"a displacement of said at least one of said at least three passive detectable devices with respect to the object"* are examples of discrete inputs. As recited in paragraph [0021], the discrete inputs are *"linked to various functions in the CAS system".* Therefore, the Applicant submits that the present amendment is fully supported by the specification as originally filed.

The Applicant submits that the position of the LED 742 taught by Franck et al. is a continuous input and not a discrete input. The LED 742 can take a plurality of

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continuous positions between an initial position and a final position. Referring back to the example of the mouse, the motion of the LED 742 can be compared to that of the mouse causing the cursor on the display to be moved. In the system taught by Franck et al., moving the LED 742 results in a displacement of the end of the surgical instrument on the display 610. In a system comprising a computer and a mouse, no particular function of the computer can be executed without clicking the button of the mouse. Accordingly, no function can be executed in the system taught by Franck et al. since only a continuous input is sent to the system by moving the LED 742. Therefore, the Applicant submits that Franck et al. fail to teach or suggest at least the step of *"interpreting a displacement of said at least one of said at least three passive detectable devices with respect to the object as a discrete input from the handler"* since they only teach the communication of a continuous input and no computer function can be associated with a continuous input.

The Applicant respectfully submits that Franck et al. do not teach all of the elements of amended claims 2, 14, and 15. Therefore, amended claims 2, 14, and 15 are believed to be novel and patentable in view of Franck et al.

Furthermore, the Applicant submits that claims 3, 4-5 as amended, 9-10 as amended, and 11-13 are also patentable over the cited reference for reasons similar to those provided above concerning amended claims 2, 14, and 15.

Conclusion

In view of the foregoing, the Applicant believes that all rejections have been overcome and early and favorable notice is earnestly solicited.

Respectfully submitted,
JANSEN, Herbert André
By:

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(Date)

Pierre T. A. NGUYEN (Reg. No. 55,043)
Agent of Record
OGILVY RENAULT LLP
1981 McGill College Avenue, Suite 1600
Montreal, Quebec, Canada H3A 2Y3
Tel.: (514)847-4243